

### **REMARKS/ARGUMENTS**

Applicants acknowledge with appreciation the rejoining of the claims of Groups I and II. Applicants have amended the specification as suggested in the Office Action; accordingly, the objection to the specification should be withdrawn.

Claims 1-20 are pending in the application. Claims 4 and 13 have been canceled. Claims 1-3, 5, 7-12, and 17-20 have been amended. Support for the amendments can be found in the specification, particularly on pages 2, 4, 5, 7, 8, and 13 as well as in the original claims. No new matter has been added by way of amendment. Re-examination and reconsideration of the claims as amended are requested.

#### **The Rejection of Claims Under 35 U.S.C. §112, First Paragraph, Should Be Withdrawn**

The Office Action (6/17/03, page 2) has rejected claims 1-20 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description and enablement requirements. Applicants respectfully traverse these rejections.

Independent claims 1 and 8 (and therefore claims 2-3 and 5-7 which are dependent on or incorporate the limitations of claim 1 and claims 9-12 and 14-20 which are dependent on or incorporate the limitations of claim 8) have been amended for clarification and to include additional limitations. Support for the amendments can be found in the specification, particularly on pages 2, 4, 5, 7, 8, and 13 as well as in the original claims. Independent claims 1 and 8 now include the limitation that the native protein is VSP $\alpha$  or VSP $\beta$ .

The present specification discloses the amino acid sequences of VSP $\alpha$  and VSP $\beta$ , the sequences of several methionine-enriched VSP $\beta$  variants, and a nucleic acid molecule encoding an engineered protein (VSP $\beta$ -Met 10; see Figure 4). As noted in the Office Action (page 4):

Applicant teaches proposed methionine enriched VSP $\beta$  variants based on conserved amino acid residues within VSP homologues (pages 15-16 and Figure 2); positions of possible tolerated amino acid substitutions within VSP $\beta$  (pages 16-19); a strategy for isolating correctly folded methionine enriched variants of VSP $\beta$  by testing for binding to a VSP $\beta$  specific antibody (pages 19-22) and methionine enriched variant VSP $\beta$ -[Met]10 binding to wild type VSP $\beta$  specific antibodies (page 19).

Thus, the present specification provides exemplary nucleotide and amino acid sequences as well as guidance regarding evaluation of the functional limitations of the claims. Applicants believe that the teachings of the present specification, when considered by those of skill in the art, satisfy the written description and enablement requirements.

Accordingly, Applicants respectfully submit that the rejections of claims under 35 U.S.C. §112, first paragraph, should be withdrawn.

The Rejection of Claims Under 35 U.S.C. §112, Second Paragraph,  
Should Be Withdrawn

The Office Action (6/17/03, page 6) has rejected claims 1-20 under 35 U.S.C. §112, second paragraph, as being indefinite. Claim 1 was rejected for a variety of recitations and has been amended for clarification. Support for the amendments can be found throughout the specification, particularly on pages 4, 5, 7, 8, 13, and in the original claims. Claim 1 retains the phrase “capable of binding” to indicate that the antibody, monoclonal antibody, antibody fragment, protein, or modified protein (see, *e.g.*, page 5 of the specification) binds to both the native protein and the engineered protein, but not at the same time. Applicants were concerned that if the term “binds” were used to describe both the binding of the engineered protein and the native protein, the claim might be interpreted to require simultaneous binding of both proteins. If this terminology is not acceptable, suggestions for acceptable terminology would be welcomed. Applicants also note that the term “essential amino acid” is discussed in the specification, for example, on page 7. Applicants respectfully believe that in view of the amendments to claim 1, this rejection should be withdrawn.

Claim 2 was rejected for lack of comparative basis. As this claim has been amended for clarification and is dependent on claim 1 which has also been amended for clarification, Applicants believe that this rejection should be withdrawn.

Similarly, claim 3 has been amended for clarification and claims 4 and 13 have been amended to clarify that the particular vegetative storage protein of the claim is VSP $\alpha$  or VSP $\beta$ , as discussed throughout the specification. Claim 8 has been amended for clarification. Support for these amendments can be found throughout the specification, particularly on pages 4, 5, 7, 8, 13,

and in the original claims. Claims 9, 11, 12, and 13, which are dependent on amended independent claim 8, have also been amended for clarification. Support for these amendments can be found throughout the specification, particularly on page 7, and in the original claims. Claim 17 has been amended to correct dependency, and claims 18-20 have been amended to add an article. In view of the above amendments and comments, Applicants respectfully submit that the rejections of claims under 35 U.S.C. §112, second paragraph, should be withdrawn.

The Rejection of Claims Under 35 U.S.C. §101 Should Be Withdrawn

The Office Action (6/17/03, page 8) rejected claims 18-20 under 35 U.S.C. §101 as lacking utility because “[t]he seeds of Claims 18-20 encompass untransformed seeds.” These claims have been amended to require that the seeds are transformed. Accordingly, this rejection has been obviated by amendment and should be withdrawn.

The Rejection of Claims Under 35 U.S.C. §102(b) Should Be Withdrawn

The Office Action (6/17/03, page 9) has rejected claims 1-14, 17, and 18 under 35 U.S.C. §102(b) as anticipated by Jung *et al.* WO 97/35023, published September 25, 1997.

Applicants respectfully traverse this rejection. Applicants believe that the reference is not citable against the present application under 35 U.S.C. §102(b). The Jung reference has an international publication date of September 25, 1997, whereas the present application has a priority date of December 10, 1997, less than one year later. Accordingly, the Jung reference cannot be cited against the present application under 35 U.S.C. §102(b).

Independent claims 1 and 8 (and therefore claims 2-3 and 5-7 which are dependent on or incorporate the limitations of claim 1 and claims 9-12 and 14-20 which are dependent on or incorporate the limitations of claim 8) have been amended to include additional limitations. Particularly, independent claims 1 and 8 now include the limitation that the native protein is VSP $\alpha$  or VSP $\beta$ . The Jung reference does not teach or suggest this limitation and therefore cannot anticipate the subject matter of the claims.

Further, Applicants note that the assignee on the Jung reference is the same assignee as the one on the present application and therefore the Jung reference is not available as a reference against the present claims under 35 U.S.C. §103(c).

In view of the above amendments and arguments, Applicants respectfully submit that the rejection of the claims under 35 U.S.C. §102(b) should be withdrawn.

The Office Action (6/17/03, page 10) has rejected claims 1-14, 17, and 18 under 35 U.S.C. §102(e) as anticipated by Tarczynski *et al.* U.S. Pat. No. 6,080,913, filed September 25, 1996.

Independent claims 1 and 8 (and therefore claims 2-3 and 5-7 which are dependent on or incorporate the limitations of claim 1 and claims 9-12 and 14-20 which are dependent on or incorporate the limitations of claim 8) have been amended to include additional limitations. Particularly, independent claims 1 and 8 now include the limitation that the engineered protein retains the conformation of the native protein, which is VSP $\alpha$  or VSP $\beta$ . The Tarczynski reference does not teach or suggest this limitation and therefore cannot anticipate the subject matter of the claims.

Further, Applicants note that the assignee on the Tarczynski reference is the same assignee as the one on the present application and therefore the Tarczynski reference is not available as a reference against the present claims under 35 U.S.C. §103(c).

In view of the above amendments and arguments, Applicants respectfully submit that the rejection of the claims under 35 U.S.C. §102(e) should be withdrawn.

#### The Rejection of Claims Under 35 U.S.C. §103 Should Be Withdrawn

The Office Action (6/17/03, page 11) has rejected Claims 1-20 under 35 U.S.C. §103(a) over the Jung reference in view of Gordon-Kamm *et al.* (1990) *The Plant Cell* 2: 603-608. The Office Action states that “[t]he claims are drawn to soybean and maize plants transformed with a nucleic acid molecule encoding a vegetative storage protein....”

Applicants respectfully traverse this rejection. Applicants note that claims 1-4 are not drawn to transformed plants and therefore should apparently not have been included in this rejection. In addition, the claims that are drawn to transformed plants are not limited to maize and soybean, as stated in the Office Action. Applicants also note that the Jung reference has the same assignee as the present application and therefore the Jung reference is not available to be cited against the present application under 35 U.S.C. §103(c).

Accordingly, Applicants respectfully submit that the rejection of claims under 35 U.S.C. §103(c) should be withdrawn.

#### Consideration Of Previously Submitted Information Disclosure Statement

It is noted that an initialed copy of the PTO Form 1449 that was submitted with Applicants' Information Disclosure Statement filed January 6, 2000, has not been returned to Applicants' representative with the Office Action. Accordingly, it is requested that an initialed copy of the Form 1449 be forwarded to the undersigned with the next communication from the PTO. In order to facilitate review of the references by the Examiner, a copy of the Information Disclosure Statement and the Form 1449 are attached hereto. Copies of the cited references were provided at the time of filling the original Information Disclosure Statement, and, therefore, no additional copies of the references are submitted herewith. Applicants will be pleased to provide additional copies of the references upon the Examiner's request if it proves difficult to locate the original references.

#### CONCLUSION

In view of the above amendments and remarks, Applicants submit that the rejections of the claims under 35 U.S.C. §§112, 101, 102, and 103 are overcome. Applicants respectfully submit that this application is now in condition for allowance. Early notice to this effect is solicited.

If in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject Application, the Examiner is invited to call the undersigned.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

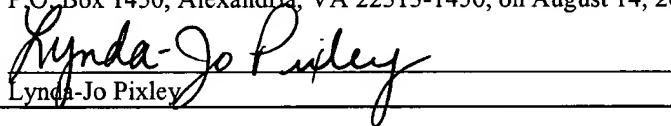


Leigh W. Thorne  
Registration No. 47,992

**Customer No. 29122**  
**ALSTON & BIRD LLP**  
Bank of America Plaza  
101 South Tryon Street, Suite 4000  
Charlotte, NC 28280-4000  
Tel Raleigh Office (919) 862-2200  
Fax Raleigh Office (919) 862-2260

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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on August 14, 2003

  
Lynda-Jo Pixley

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